

Amendments to the Specification:

Please replace paragraph beginning on page 8, line 28 with the following:

Based on the data determined by the block 202, a block 204 creates a three dimensional model e.g. for the hip comprising the acetabulum, the pelvis and the femur, including the femoral head. ~~The details of the method of creating the three dimensional model including the femoral head.~~ The details of the method of creating the three dimensional model are discussed below relative to FIGS. 4-6. After the block 204 has created the three dimensional model, it is preferred that the method include a block 206 that verifies the model against the anatomy of the patient 108. The model is created using the biomechanical axes and the various planes of reference relative to the treated hip joint. A more detailed description of the verification step is discussed below with reference to FIG. 8.

Please replace paragraph beginning on page 13, line 19 with the following:

As shown in FIG. 9, the mechanical axis 414 of the femur 400 is the line between the center of a femoral head 420 and the popliteal fossa 404. The mechanical axis 414 is how the body bears the weight through the center of the hip joint 416 through the femur 400. After the femoral head 420 has been removed as part of the initial stage of the preparation of the femur 400, an instrument 600, such as a reamer, is placed within the proximal canal 602 and a proximal shaft axis 604 of the proximal canal 602 is digitized by referencing the inner walls 606 of the canal 602. This can be done using the instrument 600 that has a tracking device 114 attached. The instrument 600 must be small enough to fit within the canal 602 so that the axis 604 can be digitized. Alternatively an instrument 1000 as shown in FIG. 10 can be used to digitize the proximal canal 602. The instrument 1000 includes a body 1002 and a series of spring biased members 1004 spaced around the periphery of the body 1002. As the instrument 1000 is placed within the proximal canal 602 the spring biased members 1004 center the instrument 1000 within the canal 602. A tracking device similar to tracking device 114 is attached to the body 1002 by an interface lug 1006 attached to the distal end 1008 of the body 1002. The digitization of the proximal canal 602 provides the surgeon with a shift value 608 (FIG. 9) of the proximal shaft axis 604 of the proximal canal 602 from the anatomical axis 412 of the femur 400. From this shift value 608, the surgeon can determine the amount, if any, of varus/valgus relative to the proximal shaft axis 604. The amount of anteversion relative to the coronal femoral plane [416] 418 can also be determined.